A.D. 1856 . . . . . N° 2625.

SPECIFICATION

OF

LOUIS JOSEPH VICTOR VUITTON.

FURNACES.

LONDON:
PRINTED BY GEORGE E. EYRE AND WILLIAM SPOTTISWOODE,
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1857.

A.D. 1856 . . . . . N° 2625.

Furnaces.

LETTERS PATENT to Louis Joseph Victor Vuitton, of Paris, in the Empire of France, Mechanician, for the Invention of "**An Improved Apparatus for Consuming Smoke.**"

Sealed the 21st April 1857, and dated the 7th November 1856.

PROVISIONAL SPECIFICATION left by the said Louis Joseph Victor Vuitton at the Office of the Commissioners of Patents, with his Petition, on the 7th November 1856.

I, Louis Joseph Victor Vuitton, of Paris, in the Empire of France, Mechanician, do hereby declare the nature of the said Invention for "**An Improved Apparatus for Consuming Smoke,**" to be as follows :—

My Invention relates to an arrangement of apparatus for feeding steam boiler an other furnaces with fuel, for the prevention of or the consumption of smoke, and whereby the combustible gases are consumed. For this purpose, and according to my Invention, I form an open space throughout the length and in the middle of the bar surface, or it may be in other suitable position, through which the fuel is raised up into the fire, and so supplied for combustion. The immediate entrance through the bars is formed of bars reaching somewhat below the bottom of the ordinary furnace bars. Immediately below this opening a chamber or trunk is placed, in which the receptacle containing the coal or fuel ascends, which extends to the length of the opening in the bars. The receptacle containing the fuel consists of a waggon, which moves to and fro on rails from the position where it receives the supply of fuel to the position where it ascends the trunk. When the waggon is

charged with fuel and in position for rising, it is elevated by means of a hand lever acting on a shaft carrying two arms, one at each end of the waggon, whereby it is lifted. Supposing the furnace fire to be burning and the ascending trunk to be filled with coals, the burning fuel will be for the most part on the bars, but partly on the body of fuel in the trunk. During the time of charging the waggon, the fuel in the ascending trunk rests upon a forked grate, which has a motion to and fro in a horizontal direction from one side. When the loaded waggon is brought into position for lifting, it is raised up against this moveable grate. The moveable grate is then withdrawn from below the trunk, the fuel therein then rests on the fuel in the waggon. Supposing a further supply is required in the furnace, the waggon is elevated a little, which has the effect of thrusting the fuel in the trunk partially upwards and into the fire. A ratchet and pall is fitted and applied to the lever shaft, to sustain the waggon in any position, a further supply is introduced by a further lift, and so on. When the waggon has ascended to the highest point, the forked grate, which is moved by hand and other suitable levers, is moved forwards, the prongs of which enter between similar vertical prongs forming that side of the waggon, and just above its bottom. The waggon is then lowered, & the fuel contained is then sustained on the forked grate. The waggon may be then lowered and traversed sideways to the shoot to be again filled, and the operation repeated. Weighted arms from the lever shaft counterbalance the weight of the waggon.

The fuel is distributed, by raking or otherwise, through the furnace door as usual, and a spy-hole is suitably placed to watch the progress of the fire, which is always kept in a bright incandescent state over the whole surface.

SPECIFICATION in pursuance of the conditions of the Letters Patent, filed by the said Louis Joseph Victor Vuitton in the Great Seal Patent Office on the 7th May 1857.

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, Louis Joseph Victor Vuitton, of Paris, in the Empire of France, Mechanician, send greeting.

WHEREAS Her most Excellent Majesty Queen Victoria, by Her Letters Patent, bearing date the Seventh day of November, in the year of our Lord One thousand eight hundred and fifty-six, in the twentieth year of Her reign, did, for Herself, Her heirs and successors, give and grant unto me, the said

Vuitton's Improved Apparatus for Consuming Smoke.

Louis Joseph Victor Vuitton, Her special licence that I, the said Louis Joseph Victor Vuitton, my executors, administrators, and assigns, or such others as I, the said Louis Joseph Victor Vuitton, my executors, administrators, and assigns, should at any time agree with, and no others, from time to time and at all times thereafter during the term therein expressed, should and lawfully might make, use, exercise, and vend, within the United Kingdom of Great Britain and Ireland, the Channel Islands, and Isle of Man, an Invention for "AN IMPROVED APPARATUS FOR CONSUMING SMOKE," upon the condition (amongst others) that I, the said Louis Joseph Victor Vuitton, my executors or administrators, by an instrument in writing under my, or their, or one of their hands and seals, should particularly describe and ascertain the nature of the said Invention, and in what manner the same was to be performed, and cause the same to be filed in the Great Seal Patent Office within six calendar months next and immediately after the date of the said Letters Patent.

NOW KNOW YE, that I, the said Louis Joseph Victor Vuitton, do hereby declare the nature of my said Invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement, reference being had to the Drawings hereunto annexed, and to the letters and figures marked thereon (that is to say):—

My Invention relates to an arrangement of apparatus for feeding steam boiler and other furnaces with fuel, for the prevention of or the consumption of smoke, and whereby all the combustible gases are consumed. For this purpose, and according to my Invention, I form an open space throughout the length and in the middle of the fire surface, or it may be in any other suitable position, through which the fuel is raised up into the fire, and so supplied for combustion. The immediate entrance through the bars is formed of bars reaching somewhat below the bottom of the ordinary furnace bars. Immediately below this opening a chamber or trunk is placed, in which the receptacle containing the coal or fuel ascends, which extends to the length of the opening in the bars. The receptacle containing the fuel consists of a waggon, which moves to and fro on rails, from the position where it receives the supply of fuel to the position where it descends the trunk. When the waggon is charged with fuel and in position for using, it is elevated by means of a hand lever acting on a shaft carrying two arms, one at each end of the waggon, whereby it is lifted. Supposing the furnace fire to be burning and the ascending trunk to be filled with coals, the burning fuel will be for the most part on the bars, but partly on the body of fuel in the trunk. During the time of charging the waggon, the fuel in the ascending trunk rests upon a forked

grate, which has a motion to and fro in a horizontal direction from one side. When the loaded waggon is brought into position for lifting, it is raised up against this moveable grate; the moveable grate is then withdrawn from below the trunk, the fuel therein then rests on the fuel in the waggon. Supposing a further supply is required in the furnace, the waggon is elevated a little, which has the effect of thrusting the fuel in the trunk partially upwards and into the fire. A ratchet and pall is fitted and applied to the lever shaft to sustain the waggon in any position; a further supply is introduced by a further lift, and so on. When the waggon has ascended to the highest point, the forked grate, which is moved by hand and other suitable levers, is moved forward, the prongs of which enter between similar vertical prongs forming that side of the waggon, and just above its bottom. The waggon is then lowered, when the fuel contained will be sustained on the forked grating. The waggon may now be lowered and traversed sideways to the shoot to be again filled, and the operation repeated. Weighted arms from the lever shaft counterbalance the weight of the waggon.

The fuel is distributed, by raking or otherwise, through the furnace door as usual, and a spy-hole is suitably placed, to watch the progress of the fire, which is always kept a bright incandescent state over the whole surface.

In the chamber or trunk forming a part of the grate the fuel burns gradually, and its fuliginous parts are distilled and caused to pass up through the incandescent mass above, and are thereby entirely consumed.

Having thus explained the principle of action, I will now give a detailed description of the apparatus.

Description of Drawings.

Figure 1, is a transverse vertical section on X, X, Figure 2, of a boiler and furnace constructed according to my Invention.

Figure 2 is a longitudinal vertical section on Y, Y, Figure 1, of same.

Figure 3, detail, showing a plan of the supporting grate, which will be herein-after explained.

Figure 4, the transverse vertical section on X^1, X^1, Figure 5, of another smoke-consuming apparatus, constructed according to my Invention, but slightly modified from the foregoing.

Figure 5, the longitudinal vertical section of the same, on the line Y^1, Y^1, Figure 4.

Figure 6, a front view of the apparatus represented in Figures 4 and 5.

Figure 7, the detail of the temporary supporting grate, and the parts whereby it is actuated.

Vuitton's Improved Apparatus for Consuming Smoke.

Figure 8, the longitudinal elevation and end view of one of the main or principal furnace bars.

Figure 9 is a set of bars of the one side of the fire, but somewhat modified from the other views shewn.

In all these Figures the same letters represent the same parts where they recur.

a, boiler, of any shape and size, according to requirements; *b*, brickwork of the furnace; *c*, *c*, bars of the grate or furnace; they are of the same form as ordinary bars, but placed so as to incline towards the middle of the fire. *d*, *d*, supports or brackets of the bars; *e*, *e*, girders or bearers, fitted and resting at one end into the back plate or brickwork, and at the other end into the front plate of the furnace; *f*, *f*, large grated bars, forming the extremes of the two parts into which the bar surface is divided, which are supported by the brackets *e*, *e*. One of these bars is represented in Figure 8, in longitudinal elevation and end view. *g*, *g*, longitudinal walls or plates, set at each end into the back and front plates; g^1, g^1, cross walls or plates, fixed to the walls *g*, *g*, forming together the trunk in which the fuel is raised into the fire; *h*, *h*, vertical guides, grooved in or fixed on the back and front plates; *i*, *i*, sliding pieces, fitted and working up and down in guides *h*; these sliding pieces are each provided with a rail i^1; *j*, *j*, brackets fixed to the brickwork, to receive bearings j^1; *k*, shaft, supported and turning in the bearings j^1; *m*, *m*, two lever arms, the extremities of which engage under the slides *i*, *i*; they may be furnished at their extremities with friction rollers, to press against the slides *i*, *i*, and whereby they are lifted. *l*, external lever, working the shaft *k*, and consequently the levers *m*, *m*, which lift the slides *i*, *i*; *n*, lever oscillating horizontally round a fixed point n^1 of the apparatus; *o*, horizontal forked iron grating, acted on by the hand lever *n*; this grating works in Figures 1 and 2, close under the sides *g*, *g*, and g^1, g^1, so as to form a bottom to the chamber G, the size of which is determined by the said walls of the trunk *g*, *g*, and g^1, g^1. *p*, small waggon, mounted on trucks moving on rails i^1, i^1. One of the longitudinal sides of this waggon is formed of vertical bars p^1, p^1; it is of the exact size of the limits of the chamber G, into which it is to be introduced. *q*, inclined plane, forming the shoot for the fuel to slide down in filling the waggon *p*; this inclined shoot communicates with a hopper or upper opening (not represented in the Drawing annexed), by which the fuel is introduced. *r*, door, furnished with a peep-hole r^1, to watch the fire and withdraw the refuse or exhausted combustible material.

The parts being thus arranged, as is indicated in the Drawings, suppose the apparatus working, viz., the chamber G full of fuel, and the furnace containing

a fire. To feed or add a fresh supply of fuel, the waggon is filled with fuel, which is then brought on its rails into the centre of the apparatus, the lever *l* is acted on, which lifts the chamber G, pushing upwards the fuel which was then inclosed, so that the upper portion (the carbonized portion) is thrown on each side, or otherwise distributed over the furnace, after which the grate is moved by means of its lever *n*, which grate introduces its teeth into the open forked side of the waggon, close above and resting on the bottom of the waggon. This forked grate C sustains the fuel so raised, when the waggon may be lowered ready for another charge by a contrary motion of the lever *l*. It will be readily understood that the load of fuel brought under the fire now begins to be distilled in the chamber G, so that the products of its combustion pass up through the incandescent fuel which occupies the surface of the fire, and that they are there entirely consumed. Thus, the fuel always arrives at and enters the furnace deprived of its fuliginous parts.

The second apparatus which I will now describe, represented at Figures 4, 5, and 6, differs from the first in this, that the waggon is filled in front outside of the apparatus, and the motion of the forked grate *o* is differently communicated. I will explain only the differences of this modified form or arrangement. *g*, *g*, cast-iron partitions with ribs, one of which is pierced with holes, for the introduction of the teeth of the moveable grate; i^1, i^1, rails, extending under and outside of the apparatus. Each end of these rails is bent upwards to form a stop for the wheels of the waggon. The part outside of the apparatus is moveable, and may be removed at pleasure; the internal part is stationery, and rests on the two guides *i*, *i*; it is also provided with hooks i^{11}, whereby the waggon is secured, so as always to force it down when the lever *n* is acted on to produce the downward motion.

m, *m*, lever arms, jointed to and acting on the sliding pieces *i*, *i*. The shaft of these rods is provided with a ratchet l^1, fixed to the front plate, by which the waggon is secured and held at different heights, as may be required, according to the amount of fuel to be thrust into the fire. m^1, lever arm or shaft *k*, provided with a counterweight, to balance the weight of the waggon; n^{11}, lever arm, jointed to the lever *n*, which actuates the rod n^{111}. n^{111}, connecting rod, jointed to the rod n^{11}, and acting not the forked grate *o*; o^1, supporting bar of the grate *o*; *s*, *s*, horizontal slides, moving in the traverse s^1 formed in the front and back plates.

The working of this second apparatus is the same as the first, with the exception that the lever *n* moves vertically instead of horizontally.

In Figure 9, the furnace bars *c*, *c*, are arranged with an opposite inclination to the foregoing, that is to say, inclined downwards towards the side of the

furnace instead of upwards, as in Figures 1 and 4 ,which arrangement I more especially prefer. The furnace grate or bars may also be placed in a horizontal position.

For large fire-places I would suggest that the feeding of the fire should take place at each side of the fire, having a suitable feeding waggon, and also a chambers or trunks, for distillation.

Having described the nature of my Invention, and the manner in which the same is or may be carried into effect, I declare that what I claim is,—

First, the arrangement of furnace or grate provided with a chamber G, in which the distillation of all fuel is effected previous to passing into the grate, as herein-before described.

Secondly, the arrangement of the apparatus for feeding, with the waggon *p*.

Thirdly, the arrangement of the forked grating, for the support of the charge of fuel, as described.

Fourthly, and lastly, the general arrangement of the apparatus herein-before described, and represented in the Drawings hereunto annexed, for effecting the consumption of smoke in furnaces.

In witness whereof, I, the said Louis Joseph Victor Vuitton, have hereunto set my hand and seal, this Fifth day of May, in the year of our Lord One thousand eight hundred and fifty-seven.

L. J. V. VUITTON. (L.S.)

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A.D. 1856. Nov. 7. № 2625.
SUTTON'S SPECIFICATION.

(1 SHEET.

FIGURE 1.

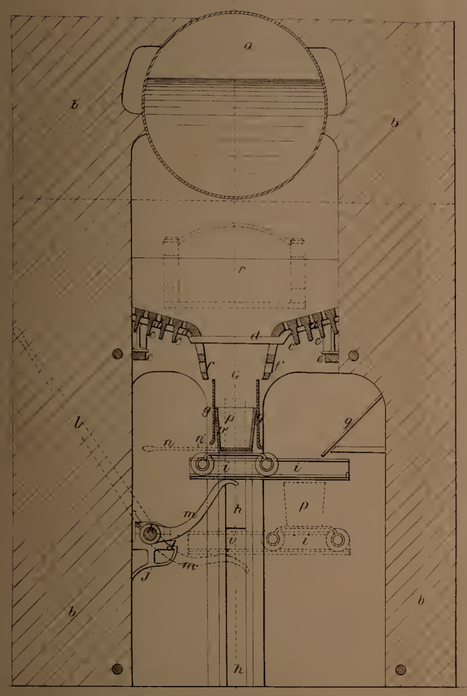


FIGURE 2.

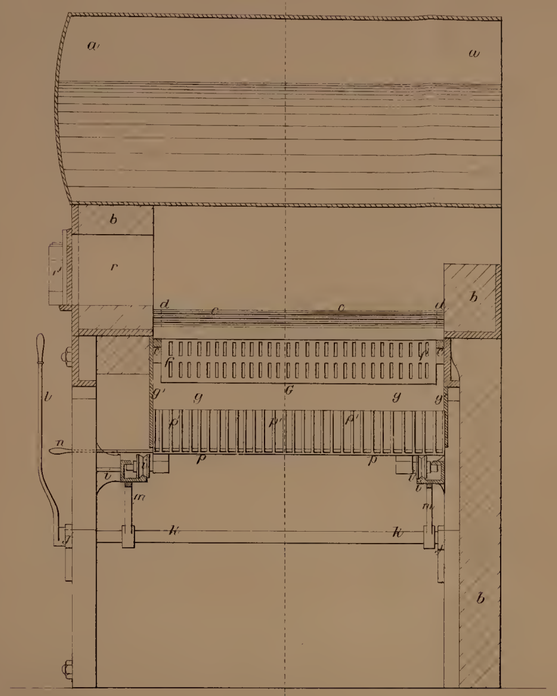


FIGURE 3.

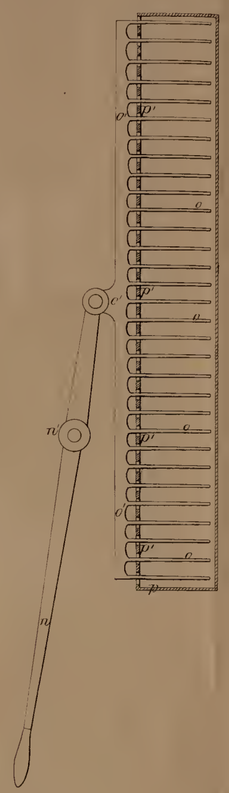


FIGURE 7.

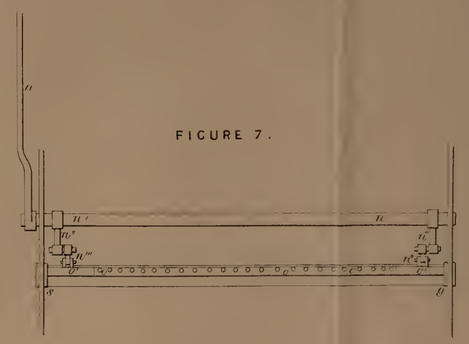


FIGURE 8.

FIGURE 9.

FIGURE 4.

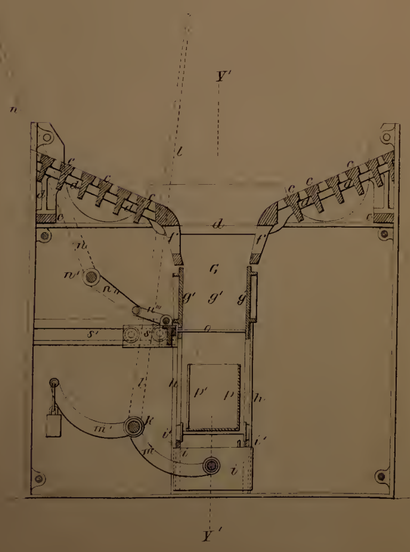


FIGURE 6.

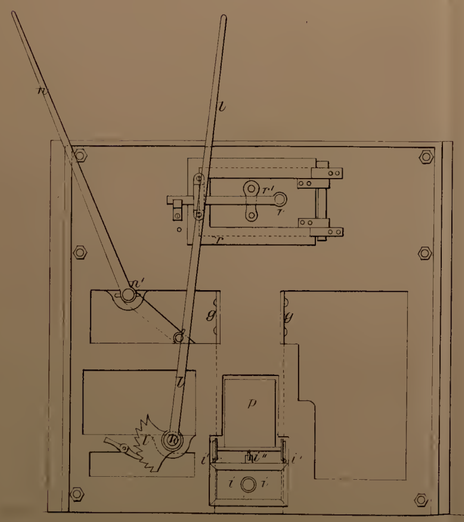
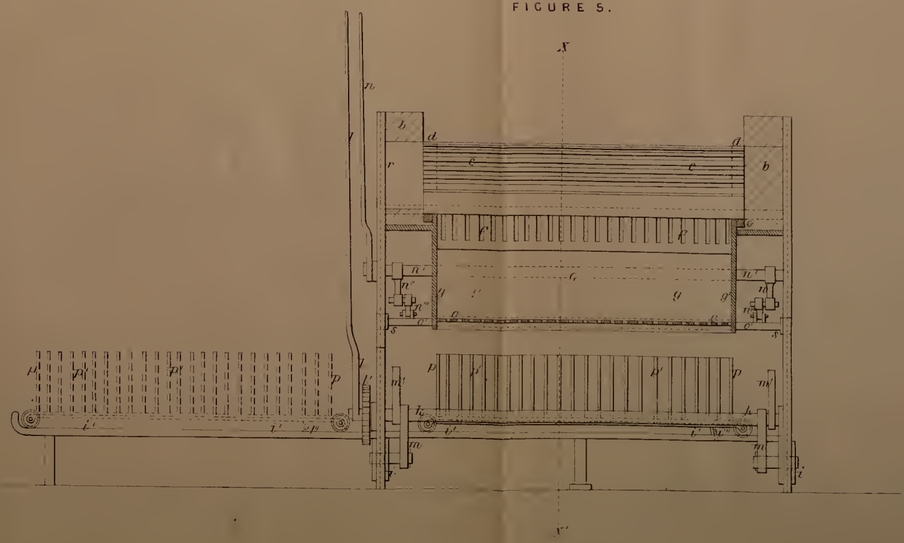


FIGURE 5.



Scales

6 inches – 5 Feet for the figs 1, 2, 4, 5, 6, 7, 8, 9
1 Foot 5 – for the fig 3

Tint drawing is not colored

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